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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/690,730	10/22/2003	Osamu Samuel Nakagawa	10004808-1	7685

7590 06/01/2005

HEWLETT-PACKARD COMPANY
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EXAMINER

SCHILLINGER, LAURA M

ART UNIT PAPER NUMBER

2813

DATE MAILED: 06/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/690,730	Applicant(s) NAKAGAWA, OSAMU SAMUEL	
	Examiner Laura M. Schillinger	Art Unit 2813	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 March 2005.
 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-27 is/are pending in the application.
 4a) Of the above claim(s) 21,22 and 25-27 is/are withdrawn from consideration.
 5) ☐ Claim(s) _____ is/are allowed.
 6) ☒ Claim(s) 14-20, 23-24 is/are rejected.
 7) ☐ Claim(s) _____ is/are objected to.
 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Newly submitted claims 21-22, and 25-27 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: these claims are directed to a separate and distinct species from that of originally elected claims 14-19 because they require a via structure and multiple barrier layers.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 21-22, and 25-27 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 14-20, 23-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Sandhu et al ('206).

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Sandhu teaches the following claimed limitations as cited below:

14. An on-chip by-pass capacitor comprising: a first electrode formed during a deposition of a first metal layer of a multi- level deposition device (Fig. 2A (20));

a substantially thin dielectric layer configured to be deposited over said first electrode (Fig. 2A (24 and Col.5, lines: 50-55); and

a second electrode formed during a deposition of a second metal layer of said multi-level deposition device, wherein said second electrode is formed over said substantially thin dielectric layer (Fig.3B (25)).

15. The on-chip by-pass capacitor according to claim 14, wherein a dielectric constant of said substantially thin dielectric material layer is substantially high (Col.1, lines: 15-20).

16. The on-chip by-pass capacitor according to claim 15, wherein said substantially thin dielectric material layer includes silicon nitride (Col.1, lines: 50-55).

17. The on-chip by-pass capacitor according to claim 14. wherein said thickness of said substantially thin dielectric material layer is between 50 to 100 angstroms (Col.5, lines: 50-55).

18. The on-chip by-pass capacitor according to claim 14, wherein said substantially thin dielectric material comprises a composite of materials (Fig.3B (22, 23, and 24, see also Col.6, lines: 45-50).

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19. The on-chip by-pass capacitor according to claim 18, wherein said composite of materials includes PZT and platinum (Col.7, lines: 1-10 and Col.1, lines:60-65).

20. (New) The on-chip by-pass capacitor according to claim 14, wherein the first electrode comprises a first electrode formed during the deposition of the first metal layer of a VLSI device (capacitors are VLSI devices as admitted in Applicant's specification).

23. (New) The on-chip by-pass capacitor according to claim 14, wherein the first electrode is formed among a plurality of metal signal lines arranged in a parallel line configuration (Fig.3B-layer 20 is formed in a parallel line configuration).

24. (New) The on-chip by-pass capacitor according to claim 14, wherein the second electrode is formed among a plurality of metal signal lines arranged in a parallel line configuration (Fig.3B-layer 25 is shown in a parallel line configuration).

Response to Arguments

Applicant's arguments filed 3/14/05 have been fully considered but they are not persuasive. Applicant argues that Sandhu does not anticipate Applicant's claim language because Sandhu fails to teach forming a first electrode during a deposition of a first metal layer of a multi-level deposition device. However this is not persuasive because a capacitor is a multi level deposition device and the first electrode would be its first metal. This same rational follows for

the second metal layer. Lastly, the examiner considers the dielectric layer to be “substantially thin” as claimed by the Applicant.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

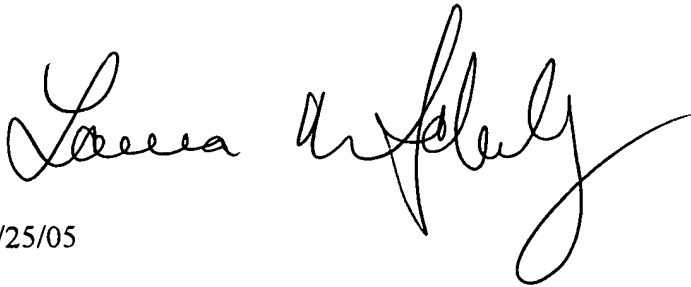
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura M. Schillinger whose telephone number is (571) 272-1697. The examiner can normally be reached on M-T, R-F 7:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Carl W. Whitehead, Jr. can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Laura M Schillinger', with a long, sweeping horizontal stroke extending to the right.

Laura M Schillinger
Primary Examiner
Art Unit 2813

5/25/05